

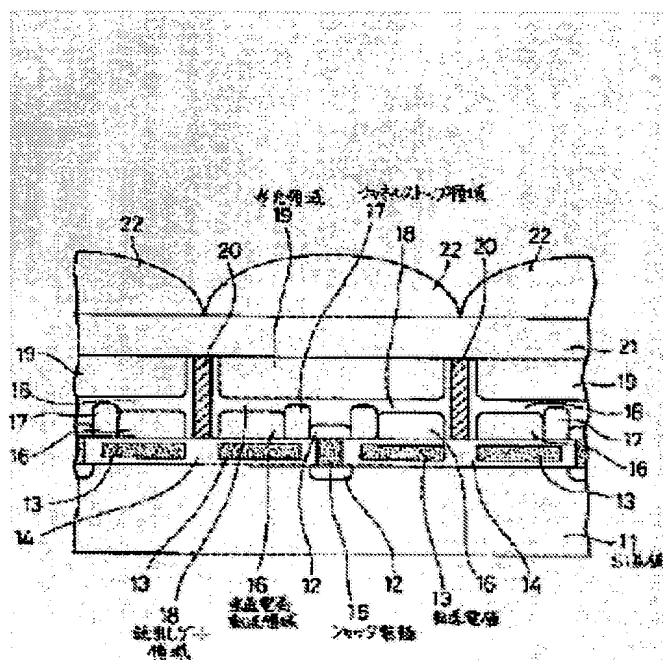
SOLID-STATE IMAGING DEVICE

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Classification:
- **international:** H04N5/335; H01L27/148
- **european:**
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Abstract of JP2003078826

PROBLEM TO BE SOLVED: To improve both the sensitivity of a photosensor and the dynamic range of a vertical transfer register. **SOLUTION:** A transfer electrode 13 of the vertical transfer register is embedded in a deep part of a light receiving area 19 of the photosensor, and a vertical electric charge transfer area 16 of the vertical transfer register is also formed in the deep part of the light receiving area of the photosensor. Signal electric charges accumulated in the light receiving area 19 of the photosensor are read in the depth direction of a single crystal Si substrate 11 through a reading gate 18. According to such a configuration, in both the light receiving area 19 and the vertical electric charge transfer area 16, an area can be expanded up to a size that is almost equal to an almost unit pixel (unit cell) so that sensitivity improvement and dynamic range improvement can be accomplished at the same time. Furthermore, since the transfer electrode 13 is embedded, the problem of sensitivity reduction due to structures of both sides of the light receiving area 19 can also be solved.



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